the work of Pavlov and his colleagues on the conditioned reflex ' is widely held to give general support to this view. But some considerations and recent observations on the effects of brain-lesions throw doubt on it. They seem to show that acquired facilities are not closely bound up with any particular part of the brain.

An alternative view of the material basis is that the memory-trace is some chemical change in some one nerve-cell (or group of cells). The older mode of stating this view was to say that each idea that can be revived or reproduced is deposited in some brain-cell. Three attempts to improve upon this require brief mention, the mnemic theory of R. Semon, the very similar theory of Eugenic Rignano, and the development of it by Professor Eugene Bleuler, the most eminent of living psychiatrists.

The theory finds support in the modern doctrine of the genes. For if a single cell, the germ-cell, can contain a vast number of genes, minute chemical particles each of specific constitution and capable of playing a specific determining role in ontogeny, the genes afford at least an analogy for the hypothetical traces which are called engrams. The germ-cell of so small and simple an animal as the fruit-fly contains, it has been estimated, some 5,000 genes; and presumably the egg of the human species must contain a very much larger number.

The three exponents of mnemic biology have much in common, but differ in important respects. I shall follow mainly Bleuler's version, which seems to me open to

fewer serious objections than the others. The mnemic biology based upon the theory of the engram occupies an interesting position between Materialism and Vitalism. The engram is the name given to the hypothetical memory-